8. A method according to claim **6** which includes the farmer step of preparing a compensating or reference element by treating or "poisoning" the refractory carrier with an alkali metal.

9. A method according to claim **8** which includes the further step of preparing the catalyst by wet milling a palladium (II) chloride catalyst precursor with sub-micron alumina powder, with the palladium particles formed on the subsequent calcination step fulfilling a double function as catalyst and binding agent.

10. A method according to claim **6** which includes the step, prior to calcining the slurry or paste in air, of drying the slurry or paste in air to remove volatile components of the paste.

11. A method according to claim **6** in which the catalytic activity of the sensing element is enhanced by repeatedly heating the element at a higher temperature than the operating temperature in a methane/air mixture.

12. A method according to claim **10** including a binding agent which is a colloidal silica dispersion of 15% to 30% by weight content and average silica particle size in the region of 8 nm, binding being accomplished by heating the sensing element, after the paste or slurry has been deposited onto the conductive meander, to a temperature of 900° C. to 800° C.

13. A method according to claim **6** in which an organic solvent is combined with ethyl cellulose, the alumina and the glass frit to obtain a paste, which is stenciled onto the conductive element and calcined in air at a temperature of 600° C. to 800° C.

14. A method according to claim **6** in which the catalyst is prepared by calcination with an alumina precursor and an acid, and in which activated all is mixed in a predetermined ratio of approximately 2:1 by weight, with the addition of 1% or less by weight of a pelting agent, with calcination taking place in air at 700° C. to 800° C. for approximately 30 minutes.

15. A method according to claim **6** which includes the step of spraying a solution of the catalyst and carrier paste through an aligned shadow mask onto the track from both sides of the substrate.

16. A method according to any one of the preceding claims **6** to **15** in which the noble metal is platinum, the method including the step of annealing the catalytic gas detectors, when combined into a wafer, in a single step for stabilizing the electrical properties of the platinum, and for facilitating adhesion and cohesion of the catalyst and carrier and conditioning of the catalyst.

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